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ABSTRACT

The Office of Educational Research and Improvement funded nine projects exploring whether partnerships could help improve teacher education and induction. It created consortia of state education agencies, state agencies of higher education, teacher education colleges, and local school districts to collaborate on improving teacher education and induction. Projects identified lessons learned regarding impact, models of teacher education, arts and science faculty engagement, teacher education curriculum, clinical experiences, standards, recruitment, retention, and professional development. Respondents considered experiential learning invaluable for student teachers. They considered the post-baccalaureate effective, also noting the effectiveness of an undergraduate minor in education and programs that deliberately linked undergraduate study to community and classroom experience in graduate license preparation. They had difficulty engaging arts and sciences faculty. Change in teacher education programs did not occur rapidly, and statewide partnerships were most successful in strategies to modify curriculum. Student cohorts, early exposure to the classroom, Professional Development School experiences, and careful preparation of mentors and cooperating teachers contributed to more successful teachers. Projects spanned the spectrum of standards, focusing on content standards. Personal attention by faculty contributed to successful student recruitment and retention. More sophisticated, customized approaches to induction and professional development addressed barriers to teacher retention. (Contains 70 references.) (SM)

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Introduction

What occurs in schools and teacher education is far removed from the halls of bureaucracy, both in states and at the national level. This was no more evident than in a project conducted in New Mexico that was funded by the Office of Educational Research and Improvement. We had proposed to develop a model of teacher education for a rural school district about 20 miles from Albuquerque, the largest city in the state; one hallmark of the project was our goal to involve community members and parents in the process. The school district has about 15% White students, with five Pueblos, a Hispanic majority village, and Bureau of Indian Affairs schools (BIA). Involving community meant working with 5 tribal governments, the village, and the BIA in addition to the school district, all of which seemed to think that the goliath of a university from Albuquerque was there to tell them what to do. As we worked to convince skeptical community and school leaders and dealt with superintendent turnover, program staff in Washington also changed, leading to questions about why we were not meeting our timelines. It took almost two years to get to the point of collaboration in the project, and it was not until two Washington staff visited various schools and leaders in the 650 square mile school district that they fully comprehended the challenge of what we were trying.

This story signifies the depth of cultural and geographic difference between those who make and implement policy and those who are daily involved in the education of the nation's children. These differences result in political disputes and contradictions that play out in ever-increasing acrimony and rhetoric around what ideological view will prevail for teacher education. While some policy makers advocate alternatives to teacher education programs, and reform documents stress the need for transformation of the current system, daunting barriers impede consequential change, with consequences for both students and teachers.

Historically, functional bureaucracies have evolved around and within teacher education, across all 50 states and some 1,300 schools, colleges, and departments of education (SCDE) lodged within institutions of higher education (IHE). These bureaucracies form barriers to the reform of teacher education even though many states and the federal government have taken steps in recent years to raise standards to ensure accountability for teacher education programs through increased regulation of university based teacher education. Standards and accountability measures vary widely from state to state, just as teacher licensing systems vary. However, accountability concerns about quality of preparation and license bump into the brick wall of the market, and it is commonplace for states to violate their own standards for license and teacher education by permitting districts to hire unqualified teachers with impunity. Despite the rhetoric about quality and regulations for higher education teacher preparation programs, states have approved alternative pathways to the classroom where accountability standards and regulations do not apply. The wide variety of state policies, standards, and practices and states' willingness to ignore standards for teachers substantially contributes to the failure of schools to reach the levels of quality demanded by accountability. Instead, teacher education is caught in a seemingly never-ending round of politics. In addition to the agencies charged with regulation and control of teacher preparation, teacher education is the focus of proposals, recommendations, rhetoric, analysis, and censure from professional organizations such as reform groups, special interest groups, foundations, and standards organizations, and licensing system in states are now under attack. Yet there is little information, much less research, about what would happen if states work with teacher education and schools to implement consistent and constructive policy to improve education.

Overview

That was the aim of the Office of Educational Research and Improvement in 1995 when it funded nine projects designed to explore whether partnerships could be the source of improvement of teacher education and teacher induction. The goal of the program was to bring about change in initial teacher development and induction into the profession during the first years of teaching, particularly in state policy systems. The program sought consortia of the state education agency, state agency of

higher education, one or more teacher education colleges, and one or more local school districts to work in partnership to improve teacher education and induction. The Office for Educational Research and Development, U. S. Department of Education, funded these projects:

- California—the School-University Collaboratives for New History-Social Science Teachers (California UCLA)
- California—Consortium for Teacher Development (California Santa Cruz),
- Colorado—the Colorado Partnership for Educational Renewal,
- Connecticut—the Connecticut Elementary Education Project,
- Kansas—the State of Kansas Teacher Education Systemic Reform Initiative
- Maryland—the Maryland Professional Development School Consortium,
- Massachusetts—the Massachusetts Consortium for Initial Teacher Professional Development,
- New Mexico—the New Mexico Teacher Learning Community Program, and
- Oregon—the Standards-based Teacher Education Project.

New Mexico's was the only project that was funded through a school system in collaboration with a university, and all programs differed in major ways in the approaches they took and in their stage of state-wide policy system development, ranging from New Mexico with hardly any state-wide collaboration to Oregon, Kansas, Maryland, and Connecticut, which were far along in state planning and implementation and which used the project to continue their efforts.

Method

OERI asked each project to identify "lessons learned" in eight categories that project research and evaluation had addressed, supplemented by supporting research and evaluation data: 1) impact of partnership; 2) models of teacher education; 3) engagement of arts and science faculty; 4) teacher education curriculum; 5) clinical experiences; 6) standards; 7) recruitment and retention; 8) professional development. This paper reports on the lessons learned about initial teacher professional development

that were identified in the projects[1]; footnotes and citations in this paper provide supplementary references for research and reviews particularly relevant to project findings.

Each project submitted its analysis of what it had learned regarding the categories above in addition to the project evaluation report, research reports, materials developed, and supplementary information. The majority of reports took care to document their procedures, methods, instruments, participants, and results, as well as to provide supporting documentation. Reports ranged from comprehensive to adequate, but on the whole, projects provided a thoughtful analysis and more than adequate documentation of project accomplishments and difficulties. Research approaches included longitudinal tracking of student performance (without control groups), pre-post testing, questionnaires that provided quantitative data, in-depth interviews, action research, observation, video- and/or audio-taping, anecdotal records, external evaluations, and in a few instances, what amounted to mini-case studies.

I was asked by the U.S. Department of Education to synthesize the reports to determine whether lessons learned in the projects had advanced knowledge about teacher education. My focus for this article is on what the projects singled out as lessons learned about the eight categories above, treated as themes for analysis of the results. To accomplish that task, I conducted a meta-ethnography (Noblit & Hare 1988), which is a structured approach to synthesizing qualitative research. Information provided in the reports about the eight categories was coded and similarities, differences, and promising practices were documented. Next, I examined the data across projects in order to determine whether results from one project were corroborated by the majority (75%) of other projects reporting in that category. Consequently, results reported in this article represent corroborated lessons across projects, rather than individual project findings, although examples and quotations are included to illustrate themes and to provide promising practice examples. As with all research, interpretation of data plays a major role (Stake, 1995), and synthesizing nine project reports amounts to a secondary interpretation and is necessarily limited by the quality of the original interpretation.

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[1] Not all projects attempted all eight categories.

Results

Partnerships and professional development schools. Partnerships, networks, and professional development schools are an essential key to reform of teacher education and school improvement, and projects that used the professional development school (PDS) model agreed that the result is better teacher preparation. A typical comment came from a faculty member in Colorado, "There is no comparison to the quality, the confidence, the improvement, the hands on experiences. Teachers just rave about the differences of student teachers who have been PDS students because they are so well prepared."

Maryland used the PDS as the "cornerstone" of its reform agenda and found that students prepared in a PDS were more prepared to enter the profession than those traditionally prepared. Project research indicated that PDS-prepared teachers outperformed traditionally prepared teachers, a finding confirmed by other projects, suggesting that systematic implementation of professional development schools may provide a key to both teacher education and school improvement.

All projects that used the professional development/partner school model found benefits for the university, schools, and the teaching profession that outweighed the difficulties, including: 1) learning about the culture of the school and about inner-city children prior to entering the profession; 2) moving professors to the same plane as the rest of the education community, giving them a constant reality check; 3) enabling inner-city teachers to learn new teaching strategies and to draw on a resource not previously available; 4) enabling practicing teachers to contribute to the reform of teacher education; 4) enabling reality-based pre-service education; and 5) enabling all participants to come to common understanding about student learning (See also Levine, 1996; Pines, Seidel, & DiTrani, (1998); Teitel, 1997; Valli, Cooper, & Frankes, 1997; Zeichner & Miller, 1997). The report from the Moylan/McDonough-Saint Joseph College partnership (Connecticut Project) captures the essence of the challenge of the professional development school:

> We have discovered that PDSs, are, in fact, symbiotic entities and that the notion of an exemplary site for the learning and practice of teaching, especially in an urban area, is not a present-day reality, but,

> instead a goal toward which both institutions must work. ... Teachers [in inner-city schools] find themselves entrapped in an unfortunate and tragic classroom culture in which students resist their teachers' attempts to inculcate personal responsibility and accountability for learning (called the "pedagogy of poverty" by Haberman 1991). ... [As a result] it has been necessary for ... PDS participants to challenge district policies that have, historically, underestimated the needs of teachers as learners. ... The PDS relationship [must] move away from the margins of the partnering institutions ...[with the demonstration of attainment] of some of its lofty goals, [the PDS] has the potential to dramatically alter the local educational landscape.

Projects already well along with professional development/partner schools, such as Colorado and Kansas, focused on the maintenance and progress of the partnerships. For example, students in Colorado partner schools reported that they were more successful as a result of changes in educational practices in the school and that what was studied was important for them to know. The project viewed the partner school as a resource to the district for piloting new curriculum and assessments or as an exemplary site for professional development. The school principal was a key person in creating a learning community that works together to accomplish the goals of the PDS/partner school, and Colorado found that students are a rich source of information about all aspects of the partner school, including input into what they should be learning and how teacher-interns are doing. However, while collaboration between higher education (including arts and sciences faculty) and schools increased over time in projects, they encountered problems in the maintenance of partnerships, such as lack of coordination, failure of many faculty to buy-in, and inconsistent and limited communication at the higher education level.

A formal policy or agreement defining the nature and substance of the partnership and professional development, including exchanges and resources, management, and implementation was essential to success and projects found that without such formal agreements, progress was significantly slowed down. Partnership start-up was hindered by the lack of systematic research that might shed light on solving problems and strategies for effective collaboration, a barrier previously reported by Valli, Cooper & Frankes (1997). Reports graphically described the ups and downs during the first two

years of implementation and documented development stages of progress and regression, especially as project personnel changed. Project partnerships also found that their work may be difficult to sustain when leadership changes, as in New Mexico.

Lack of good and consistent communication among educators was mentioned throughout the project reports, which indicated that the partnerships and networks went far toward providing the communication that previously had been lacking. For example, New Mexico integrated the issues of teacher education and school performance through a partnership between one large urban university and a small (in number of students), rural, and diverse community and school district, where issues of history, tradition, and turf affected partnership relationships. Working toward a culturally responsive model of teacher development requires curriculum reform at the university level if the traditions and values of the American Indian and Hispanic communities are to be honored and validated and the project found that a teacher-liaison between the university, school district, and community became an inestimable resource.

Models of teacher education. Should teacher education be an undergraduate program offered by an institution of higher education, should it be a graduate-level program that offers a master's degree in tandem with license, or should teacher education be a license-only program offered by various providers that may include institutions of higher education? To compete with private vendors and to meet the needs for new teachers in the states, projects learned that a variety of approaches to the structure of teacher education is essential, from undergraduate to post-baccalaureate.

Offering a post-baccalaureate program, Kansas found that non-traditional adult students have a tendency to fall into one of three categories: 1) confident and independent students who choose to leave a successful career to teach; 2) older students who seek to enter teacher after a less than successful career or a series of jobs; and 3) committed but needy students. Students in categories 1 and 3 became excellent students and teachers, while students in category 2 created problems within the program. Massachusetts and Maryland developed successful alternative certification programs ranging from a one-year graduate program in a PDS to a Master of Arts in Teaching, while California UCLA integrated undergraduate and post-baccalaureate programs with "blended" content and pedagogy courses. Projects confirmed that

programs that compress the time required for completion of the program must include strong mentoring components to help adults who have idealized notions of schools and teaching cope with the harsh realities of schools and the anxiety of starting over in a new career (see Eifler & Potthoff, 1998; Knauth, 1994)

Extended programs were highly successful when professional development schools were used as the preparation site, and confirmed the literature that students are well prepared and more satisfied during their first year of teaching. (See Darling-Hammond, 1999. See also Andrew, 1990; Andrew & Schwab, 1995; Denton & Peters, 1988; and Dyal, 1993 as cited in Darling-Hammond, 1999, in addition to Ashton & Crocker, 1986; Begle, 1979; Darling-Hammond, Wise, & Kline, 1995; Evertson, Hawley, & Zlotnick, 1985; Guyton & Farokhi, 1987). In spite of the findings, there is little support in the vast majority of education schools for five-year or fifth-year programs with about 25% offering post-baccalaureate, license-only programs (Valli, Cooper, & Frankes, 1997).

In contrast, Maryland, California Santa Cruz, Kansas, and New Mexico supported the model of undergraduate teacher education. Kansas investigated structural approaches to licensure programs and concluded that the elimination of the undergraduate degree in education "should not be viewed as a panacea for increased content knowledge." California Santa Cruz found that a minor in education for students with content majors permitted students to learn abut the profession, provided an introduction to issues such as language and diversity and theories of teaching and learning, and permitted faculty to counsel students about the teaching profession, which enabled students to make more informed decisions about their career. The minor was highly successful in terms of numbers, stabilizing at approximately 2,500 students a year (an increase of 500%), with one-third of the enrollment from minority populations.

While limited research supports the strength of the post-baccalaureate model, the findings of these projects indicate that an undergraduate minor in education and programs that deliberately link undergraduate study to community and classroom experience in graduate license preparation also have potential that warrant additional study.

Engaging arts and sciences faculty in issues of the preparation and professional development of teachers. "The single most difficult challenge confronting quality teacher professional development is the authentic involvement of Arts and Sciences faculty..." (Final Report, Maryland Consortium). A major goal of teacher education reform efforts in some states and through Title II of the 1998 Higher Education Act is to encourage or require collaboration with arts and sciences faculty, a logical strategy to improve the quality of teachers, since they learn content from the arts and sciences faculty. However, as the projects found, this is extremely hard to accomplish.

A recent article by a biologist and dean, written by Sally Frost Mason (2000) as a part of the Kansas Initiative, examined study in the academic disciplines for prospective teachers. If teachers are not well prepared, Mason argued, it is more the fault of colleges of arts and sciences than of education schools, because the faculty in the academic disciplines value research so highly and teaching so little. Arts and sciences courses at the undergraduate level have been criticized for lack of rigor, coherence, intellectual challenge, and relevance to teachers (Barzun, 1993; Boyer, 1987), and reservations also have been expressed about the content studied and the way it is taught (Ingersoll, 1996; Quehl, Bergquist, & Rowan, Chiang, & Miller, 1997).

In addition, projects learned that most arts and sciences faculty do not consider or understand the implications of the content they teach for teachers in K-12 schools, helping to clarify research that indicates majoring in a content field does not automatically equate to being a good teacher (Barzun, 1993; Boyer, 1987; Ishler, Edens & Berry, 1996; Mason, 2000). The Maryland project at Johns Hopkins also found that post-baccalaureate students often have content knowledge "gaps" that have to be "filled in" through additional content courses or workshops/institutes that increase the depth and breadth of content knowledge.

Interest and participation of arts and sciences faculty were difficult to garner beyond faculty directly involved in the projects, and Maryland concluded, "The direct involvement of Arts and Sciences in curriculum development, assessment, etc. in teacher education degree programs is negligible." One barrier identified by the Kansas Initiative was the resistance of arts and sciences faculty to workload

increases they believed would result from closer connections with education, such as curricular meetings. Another barrier discussed by the Kansas and New Mexico projects was the negative impact of promotion and tenure criteria, where work in the schools and collaboration with education can work against a positive tenure or promotion decision for arts and sciences faculty.

The Colorado report concluded that collaboration between education and arts and sciences is one of the most complex goals to address in teacher education, even though the project worked with deans in a variety of discussions and seminars and involved arts and science faculty in each of their partner schools. This finding, coupled with the observations and experiences of the other projects, indicates that collaboration with arts and sciences faculty continues to be a major complication for reform of teacher education.

Teacher education curriculum, including issues of community, culture, special needs, language, and socio-economic status. The current teacher education curriculum falls short in what first year teachers need to know, according to project reports. Experienced teachers in project professional development schools across projects indicated that prospective teachers need additional study in a) development of at-risk students, special needs students, and students of poverty; b) cultural differences; c) building relationships with parents who are in crisis; d) critical thinking and questioning; e) the interactions between teaching and learning and theory and practice; f) the links between instruction, assessment, and student learning; g) standards and reform; and h) collaborating with community.

All projects discovered that change in teacher education programs does not occur rapidly, and statewide partnerships were most successful in strategies to modify curriculum. The use of standards provided the opportunity to design a common process across education schools that resulted in major reform. The Kansas project concluded that efforts to raise standards and achieve reforms might well take over a decade and found that some type of benchmarking, similar to the Massachusetts template model, helps coalesce goals and objectives that are linked to recommendations in a coherent whole, an ambition found very difficult by all the projects. The Massachusetts template was developed to evaluate their progress and the project learned that use of the template provided a better understanding of the importance

of an integrated program spanning recruitment through induction and continuous professional development than traditional approaches to evaluation or curriculum development. Similarly, Oregon focused on high school teachers, devising a process for standards-based planning, teaching, and assessment that was designed around the Oregon standards for admission and for teacher certification, while Kansas used curriculum audits and a standards analysis to develop baseline profiles of teacher education in participating higher education institutions, which enabled complete program review and revision.

The issue of program coherence is a critical factor in high quality preparation of prospective teachers (Blackwell & Diez, 1998; Conrad, Haworth, and Millar, 1993; Darling-Hammond, Berry, Haselkorn, & Fideler, 1999; Feiman-Nemser, 1999; Howey & Zimpher, 1989), and projects confirmed that preparation programs that coherently integrate content, pedagogy, and practical experience with aligned assessment were highly successful. Agreement upon a vision for the program provides a unifying theme that links courses, both at undergraduate and post-baccalaureate levels, and standards are a useful tool to build consensus on teacher education curriculum across several campuses.

Methods courses can be successfully integrated with content preparation and/or student teaching, projects learned. Maryland concentrated on linking teaching performance to student learning through the curriculum, with methods courses integrated into the teaching internship, effectively accomplishing what some literature recommends by "blending content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction" (See Turner-Bisset, 1999, 2, online service; See also Darling-Hammond, Klein, & Wise, 1995; Feiman-Nemser, 1987; Stengel & Tom, 1996). Methods integrated with the internship can focus on the relationship between theory and practice and provided demonstrations of how standards are applied in the K-12 classroom (Maryland), and methods integrated with student teaching can enable students to make connections with K-12 students' cultural background and learning styles (New Mexico). California UCLA found that the time to license could be shortened by a semester without loss of content knowledge or pedagogical ability by offering "blended" courses that link content

and pedagogy in the undergraduate curriculum. They also found that these blended courses enabled students to develop improved methods of teaching content for their particular grade levels through integration of disciplinary study with pedagogical content knowledge.

However, projects also learned that integrated methods/student teaching and careful site selection do not always resolve the gap between theory and practice or result in coherent programs. Student teachers often described (e.g., Colorado) disparities between the theory they learn and the practice they observe in schools. Colorado has learned to address that problem through long-term continuity of collaboration between teacher education and school faculty, a strategy that was successful even in the short-term as projects addressed weakness and omissions in the traditional teacher education curriculum.

A clinical approach to teacher preparation. Coherent programs that require early classroom experience and extended internships in schools result in new teachers who perform at the level of more experienced teachers. Student cohorts further enhance this model. The Eisenhower projects followed the teacher education trend of the past few years, introducing students in more substantive ways to the classroom early in their professional study and expanding the amount of time spent in student teaching. Earlier exposure, preferably at the freshman or sophomore level, improves the retention of students in teacher education programs. Projects also found that extended student teaching or internship experiences result in better-prepared teachers, especially when the experience is in a PDS/partner school.

Almost all the projects used some form of cohort grouping for students, where students stayed together as a group throughout their courses or the entire program. Student cohorts were very successful in all projects that used the approach. Students in the Massachusetts project reported that the cohort was a "key factor" in successfully staying with the program. Maryland also found that the cohort model provides an infrastructure of support for students, with a 94% retention rate in the Johns Hopkins professional development school.

The cooperating or supervising teacher is an important part of the internship/student experience, and research shows that the vast majority have little to no preparation for their roles as supervisor and model for a student teacher, nor do they typically have information or knowledge about the professional

study that students have completed (Applegate & Lasley, 1982, 1984; Cole & Sorrill, 1992; Darling-Hammond & Cobb, 1996; Grimmett & Ratzlaff, 1986; Guyton & McIntyre, 1990; & Tom, 1997). Guyton and McIntyre (1990) identified this lack of preparation for cooperating teachers as one of the major problems of field experience. This was confirmed in the projects, which found some preservice students were treated more as a teacher's aide than a novice teacher. Some teachers often simply left the classroom to the student teacher, a practice strongly denounced by students and student teachers in the projects. Given that the student teaching experience was designed as the opportunity for students to apply the knowledge learned during professional study, as well as to observe teachers who are models of exemplary practice and to draw on their wisdom about teaching (Carter & Anders, 1996), the failure to prepare supervising teachers for their role in teacher education may contribute to research findings showing that prospective teachers have difficulty conceptualizing, developing, and implementing instruction beyond minimal pegagogical strategies devoted to the transmission of content knowledge (Kagan, 1992; Zeichner, 1992).

Projects tackled the role of cooperating teachers, and joint selection by a committee or team from the education school and the school district proved to be a successful strategy. The Maryland project found that cooperating teachers chosen jointly by the professional development school coordinator and the university site-based coordinator led to a beneficial experience. One Massachusetts site learned that training for cooperating teachers and the use of student teacher cohorts for placement in schools led to highly successful student teaching. Colorado ascertained that the new teachers felt more prepared for teaching when all clinical experiences (linked and aligned with university course work and school site curriculum) occurred in partner schools. The project also found that experiences in professional development/partner schools from the outset of the teacher education program led to much greater success during the student teaching experience, even if that experience was not in a partner school. Most of the projects incorporated professional development schools for student teaching and found the best model placed emphasis on mentor teachers collectively rather than one cooperating teacher for one student teacher.

Overall, projects found that simply extending student teaching is not enough. The formation of student cohorts, early exposure to the classroom before entering teacher education, experiences in professional development schools while completing education courses, and careful preparation of mentor and cooperating teachers all contributed to better-prepared and more successful teachers.

Educational standards for content, performance, and assessment. Standards improve teacher education, teaching, and assessment. Projects spanned the entire spectrum of standards with the primary focus on standards for content (what is taught in K-12 schools). In addition, projects learned that standards for accreditation of education schools through the National Council for the Accreditation of Teacher Education (NCATE) are extremely useful in thinking about performance-based programs and that professional standards for education programs (National Board for Professional Teaching Standards, the Interstate New Teacher Assessment Consortium) provide essential assistance for thinking about program coherence and sequence. State standards for teacher education (the education received before initial license to teach) and state standards for renewal of license were used differentially by projects, with some state's standards lending themselves more to improved programs than others. How all of these standards are assessed—how someone decides whether the standard is met—remains highly variable from state to state and institution to institution. The issue for many of the projects was how to fit the standards and their assessment into the "whole" of teacher education. All projects focused on the role of K-12 content standards to some extent, but Colorado, Connecticut, Massachusetts, Kansas, and Oregon were especially informative in what they learned.

The Colorado project attempted to develop a model that would advance the use of challenging state content and student performance standards.[2] The objective was to have each partner school, including arts and sciences faculty, teacher educators, and both preservice and practicing teachers, become expert in one content area to order to become a resource for higher education and K-12 schools. In attempting to achieve these objectives, the project learned four major lessons. First, major change did not

[2] The Colorado report indicated that this objective was not entirely successful.

occur in a designed, comprehensive manner; instead, small changes occurred, referred to by project members as *creeping incrementalism*. Second, the quality of student teaching and improved connections between courses and field experiences was improved when student cohort groups remained in one school building throughout their professional preparation. Third, prospective teachers and school students benefited from opportunities for non-instructional involvement. Fourth, simultaneous renewal and professional development for higher education faculty did not occur to the extent anticipated.

In Maryland, successful teacher education program review and revision resulted when standards of the Interstate New Teacher Assessment and Support Consortium, state standards, the Maryland K-12 assessment initiative, and NCATE standards were used as benchmarks. Massachusetts redesigned teacher education programs and experiences that were closely aligned with the state's *Curriculum Frameworks*, including "challenging content standards in the core academic subjects and student performance assessment standards." However, the project found that coherence of programs was "hard to achieve and easily lost." In Kansas, years of work toward consensus and planning for a state redesign of teacher preparation was subjected to the vagaries of voters when state school board membership turned over. However, this political adversity was redirected through statewide efforts to influence state policy.

State curriculum frameworks and a state vision for teaching and learning served as unifying concepts for alignment of curriculum with standards in Connecticut. Three major findings emerged within the project:

1) *A clearly articulated framework of standards and assessments supports teachers' common understanding of student learning and comparable judgment of study proficiency.* This finding suggests that teacher education programs should also develop such frameworks so that both faculty and prospective teachers can form common understandings.
2) *Training and professional development opportunities that are collegial in nature enhance teachers' content knowledge, pedagogy, and capacity to reach common understanding.* This finding agrees with research about professional development (Hawley & Valli, 1999; Lieberman & Miller, 1992) and suggests that purposive professional development can provide

an in-depth understanding of teaching and learning in particular disciplines. Not all teachers were effective even when they had substantial content study; teachers who lacked adequate content knowledge tended to rate student proficiency at a higher level. The latter finding warrants investigation, since it suggests an advance in knowledge about the impact of majoring in a content field.

3) *Leadership is the critical factor in embedding standards-based teacher practices into the organizational structure of schools.* The project found that lack of building-level support or knowledge of standards inhibited standards-based activities in the classroom, which was confirmed by other projects. An elemental step of standards-based education is for school and district leadership to focus the content and process of professional development on teaching to the standards and on achieving comparable judgments on student work.

A group of school, liberal arts, and teacher education faculty was formed in Oregon to build an understanding of the relationship between the Oregon Proficiency-based Admissions Standards and the Oregon certification standards for initial and advanced mastery for high school teachers for a standards-based system. The primary focus was on the knowledge and skills required and the materials and resources to support the project goal. This process caused teacher education programs to become standards-based.

Projects learned that simply giving faculty or teachers lists of standards is not sufficient. Careful alignment of sets of standards and alignment with assessment and curriculum must be accomplished by those who teach the curriculum if teacher education and K-12 instruction is to become standards-based.

Successful recruitment and retention of a diverse pool of prospective teachers. Personal attention by faculty is the key to both successful recruitment and retention. Throughout the projects, personal attention at recruitment and at key points during the course of study to be a teacher proved to be decisive. For example, the Maryland project provided additional advisement for students prior to their internship in the PDS and again at their mid-point, in addition to advisement from admission into teacher education through the internship, while New Mexico found that simple problems, such as lack of transportation from

a rural area to campus, may prevent students from continuing unless faculty step in to help provide solutions.

All projects concentrated on increasing the diversity of candidates in teacher education programs, an understandable goal when considering demographic data that have consistently shown that the diversity of the teaching force is not like the diversity of the students taught (NCES, 2001. See, for example, Banks & Banks, 1995; Darling-Hammond & Sclan, 1996; Garcia, 1995; Ladson-Billings, 1999). This conundrum has become a major policy issue for teacher education (Zeichner & Hoeft, 1996).

Both Kansas and New Mexico found that a course dedicated to teaching at the freshman level—well before formal professional study—is an effective way to improve the chances of a successful career. It not only helps students decide early in college study whether to pursue teaching as a career, it also helps faculty determine whether a student has the interest and ability to be a successful teacher, which has been a fundamental weak point of admissions into teacher education (Goodlad, 1990). Other projects also found that creative approaches to recruitment were effective, such as an undergraduate minor (California UCLA), a daylong introduction to college and teacher education for high school students on campus that included sample courses students could attend, small group meetings, and information about enrollment and financial aid (Massachusetts). In addition, New Mexico used strategies suggested in community forums but discovered that the lack of collaboration and coherence among university student services offices, such financial aid handled by several offices that did not share information with one another, prevented systematic implementation. Findings from both New Mexico and the Kansas Initiative suggest that attention should be given to the issue of coordinated services for prospective teachers within institutions of higher education.

Professional development, induction programs, and teacher retention. More sophisticated, custom-designed approaches to induction and professional development address many of the problems that have been identified as barriers to retention of teachers in the profession. This confirms research that shows teachers who receive high-quality assistance are more likely to be committed to the profession (Ingersoll, 1997, cited in Darling-Hammond, Berry, Haselkorn, & Fideler, 1999. See also Booth, 1993;

Brooks, 1996; Cameron-Jones & O'Hara, 1997; Clinard & Ariav, 1997; Elliott, 1995; Feiman-Nemser, 1996; Ganser & Koskela, 1996; Hawkey, 1997; and Saunders, Pettinger, & Tomlinson, 1995). Gold (1996) estimated that approximately 25 percent of new teachers leave teaching within two years, and nearly 40 percent leave within five years, contributing to a teacher shortage throughout the United States. Most states now mandate "induction" programs for new teachers, although many states leave it up to the district to find the funds for implementation.

California UCLA concluded that a teacher's success in the classroom is dependent in part on the "steady increase" in mastery of subject matter content and the repertoire of effective teaching strategies, in addition to learning from experiences of other professionals, a finding confirmed by other projects. Consequently, projects that abandoned the "one-shot" workshop in favor of long-term sustained approaches found their approach had positive impact on teacher preparation and professional development.

The Connecticut project took a statewide tactic using a monograph on the vision of elementary teaching and learning as the framework for designing induction and professional development that would contribute to elementary school improvement. Specific instructional strategies, such as cooperative learning or listening skills, became a unifying theme for professional development and school improvement. The project also found that teachers tend to confuse instructional methods with student outcomes, in part explaining why they "think on the level of activities and products, rather than outcomes for individual students." One site discovered, for example, that teachers could not develop learning units based on student strengths and weaknesses. The project used peer coaching as a technique to address the problems but found that teachers continued to be concerned about logistics (e.g., who would be the substitute) and that it was difficult to get them to attend to learning outcomes instead of issues such as classroom management. The project concluded that valid assessment of student progress depends upon the teacher being able to identify the knowledge, skills, and processes of the content area and to conceptualize the student's developmental progression within each of those components. With intense coaching and mentoring, teachers in the project ultimately became aware that they could not meet student

needs effectively unless they were able to assess student performance and plan accordingly. What the Connecticut project learned points to the need to incorporate student-learning principles in professional development and induction and lends insight into reform of teacher education.

Other projects discovered that many of the practices previously suggested for professional development (Lieberman & Miller, 1992) were highly successful when implemented, including various forms of study groups, such as literature circles, that meet regularly to discuss a particular topic or theme with a rotating leadership of the group. Peer observation was used in an especially creative way by the Massachusetts project, which found that the medical school model of "grand rounds" was highly effective in permitting teacher-interns to observe one another and to evaluate performance in a constructive manner. Another strategy found to be effective was when a cadre of teachers worked together on an innovative or new technique or a particular problem.

Projects that implemented the professional development/partner school model found that the model served as a catalyst for new professional development opportunities that resulted in positive changes in curriculum and teaching. Even though projects implemented more sophisticated and intensive approaches to professional development and induction, one project reported that few of the members of the partnership who did not directly participate (IHE faculty, teachers, student teachers) reported making changes in their respective curriculum, teaching strategies, or use of materials. On the positive side, partner schools in Colorado found that sustained discussions about teaching and learning occurred informally, and teachers reported learning from preservice teachers in the partner schools.

Projects also found that deliberate and planned mentoring programs provided effective induction support for new teachers, where a new teacher is paired with an experienced colleague whose responsibilities are determined by the district or school induction program. In addition, when mentor teachers regularly visited classrooms to observe new teachers, they learned about their own teaching.

Personal attention for new teachers is as effective as personal attention for students. California UCLA found that a beginning teacher institute at the end of the first year of teaching was an extremely

effective professional development and retention strategy to address the professional needs of beginning teachers and to permit them to showcase lessons they had developed.

Many of the projects used inquiry or action research as a strategy that has been heralded for professional development and school improvement (See Whyte, 1991, for example). However, action research as a systematic strategy either for professional development or improvement was highly problematic. Most projects that used inquiry asked participants to engage in "reflective practice," where they would systematically attempt to analyze their teaching and the classroom process. Many teachers did not like keeping a journal, and the demands of the classroom limited the time they had for reflection. One observation by a Colorado partner school provides insight into the problems of teacher education more generally: "...while preservice teachers report on surveys that they engage in inquiry, they are unable to discuss their inquiry at any length," suggesting a lack of depth of understanding about the teaching and learning process.

The Connecticut project connected the PDS action research initiatives to district priorities, and learned three lessons as a result. "First, the participation of a small group of motivated teachers in action research placed into high relief the discordance between the limited changes that occurred in teachers' instructional behaviors and student learning behaviors and the ambitious goals for school-wide improvements in student performance." Second, the project learned that positive outcomes from the action research did not spread into professional development, and third, the project found that teachers realistically did not have the skills to do the research without systematic guidance. The school concluded that the entire faculty would have to be involved if changes in instruction and learning were to occur by using action research, suggesting the need for additional research on the actual impact of action research on school improvement. When used successfully, however, projects found that action research can provide insight into previously unidentified problems, such as in a classroom with two adults, increases in adult/male student interactions occurred simultaneously with increases in off-task behavior for girls (e.g., the more attention the boys got, the less attention girls paid to the lesson).

Teacher retention, especially for new teachers, is directly related to the quality of professional development or induction. Sustained and consistent induction increases the retention rate when it is custom-designed and incorporates personal attention. Custom-designed continuing professional development, directly related to interests and needs of teachers is also effective, particularly if designed around the notion of a continuum of career development. Professional development can serve as a resource for district-wide professional development, providing new opportunities for all teachers.

CONCLUSIONS

Individually and together, the Eisenhower Projects advanced the profession's knowledge about how to improve teacher education and induction of teachers, demonstrated through their lessons learned. The significance of the projects, however, goes beyond that. The problems of quality teacher education, as Peter Schrag (1999) indicates, have deep roots that make change slower and harder than in other settings, but not impossible. The projects delved into change, found it difficult and slow, but accomplished what they set out to do. They established statewide partnerships that changed teacher education and induction, and along the way, found better ways to address critical problems, including recruitment, retention, diversity and culture, inner-city and rural education, and professional development.

One of the major problems in education has been ensuring that programs in institutions of higher education and state license agencies work together to achieve levels of quality that will ensure high quality teachers in all classrooms. These projects point the way toward surmounting that problem. They found that alignment of standards and commonality of judgment that includes teachers and higher education does not interfere with a state's right and authority to control education in the state, but instead, improves the overall quality of K-12 student experiences and achievement.

Just as the education system is not organized to ensure that every student has a high quality teacher (Darling-Hammond & McLaughlin, 1999), neither is it organized to ensure that every prospective teacher studies in a high quality teacher education program (Blackwell, 2002). Those states and programs participating in a program designed for high quality education now set the standard for other states and programs to make sure that each child in each classroom has a high quality teacher.

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